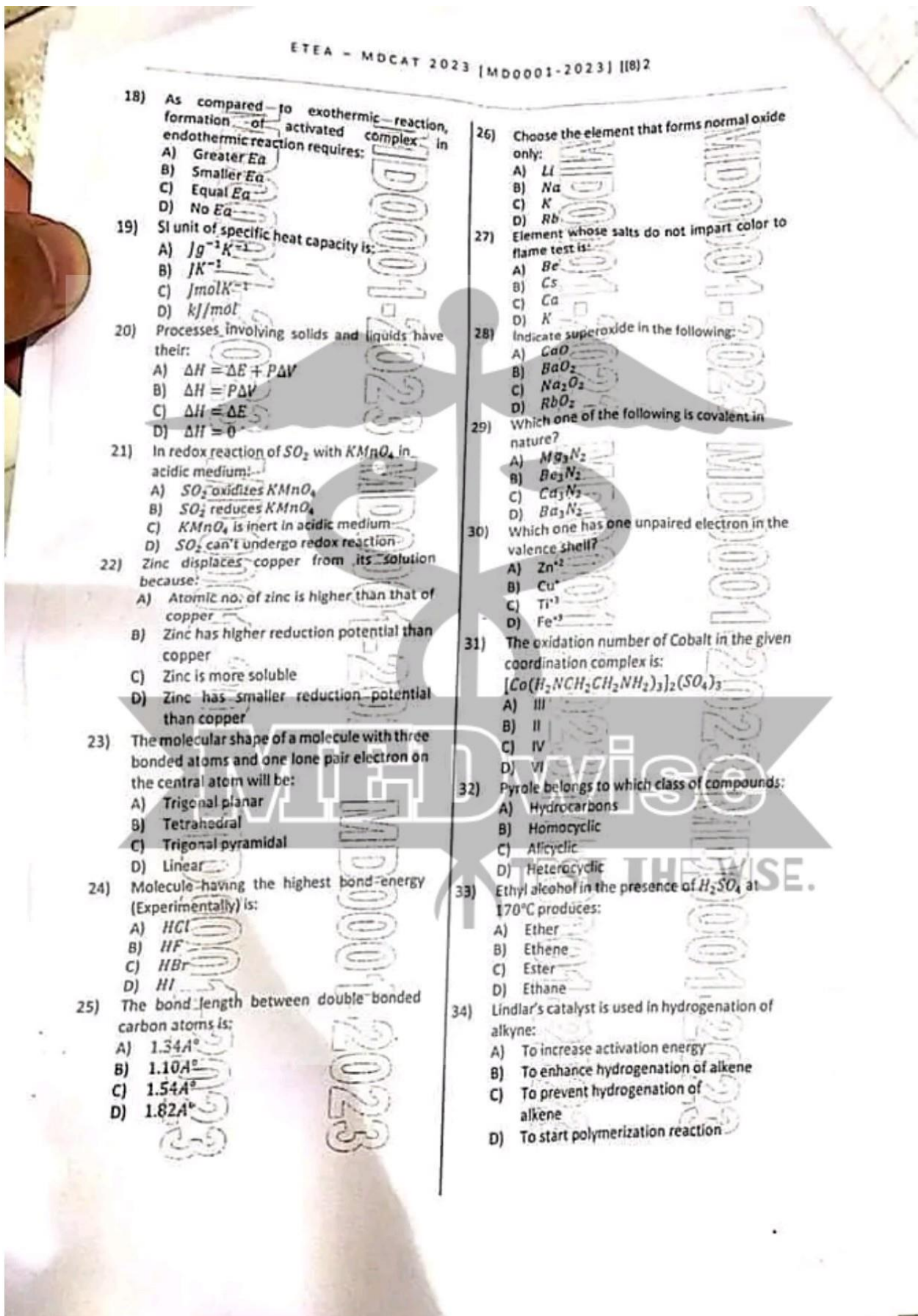


- 1) Consider the reaction below, if 5 moles each of hydrogen and oxygen are reacted to form water, the reaction reveals:  

$$2H_2 + O_2 \rightarrow 2H_2O$$
  - A)  $H_2$  is excess reagent
  - B)  $O_2$  is limiting reagent
  - C)  $H_2$  is limiting reagent
  - D) Reaction has no limiting reagent

Oxygen can be prepared by the decomposition of potassium chlorate ( $KClO_3$ ). How many moles of oxygen ( $O_2$ ) can be formed by taking 12 moles of potassium chlorate ( $KClO_3$ ) according to the following equation?

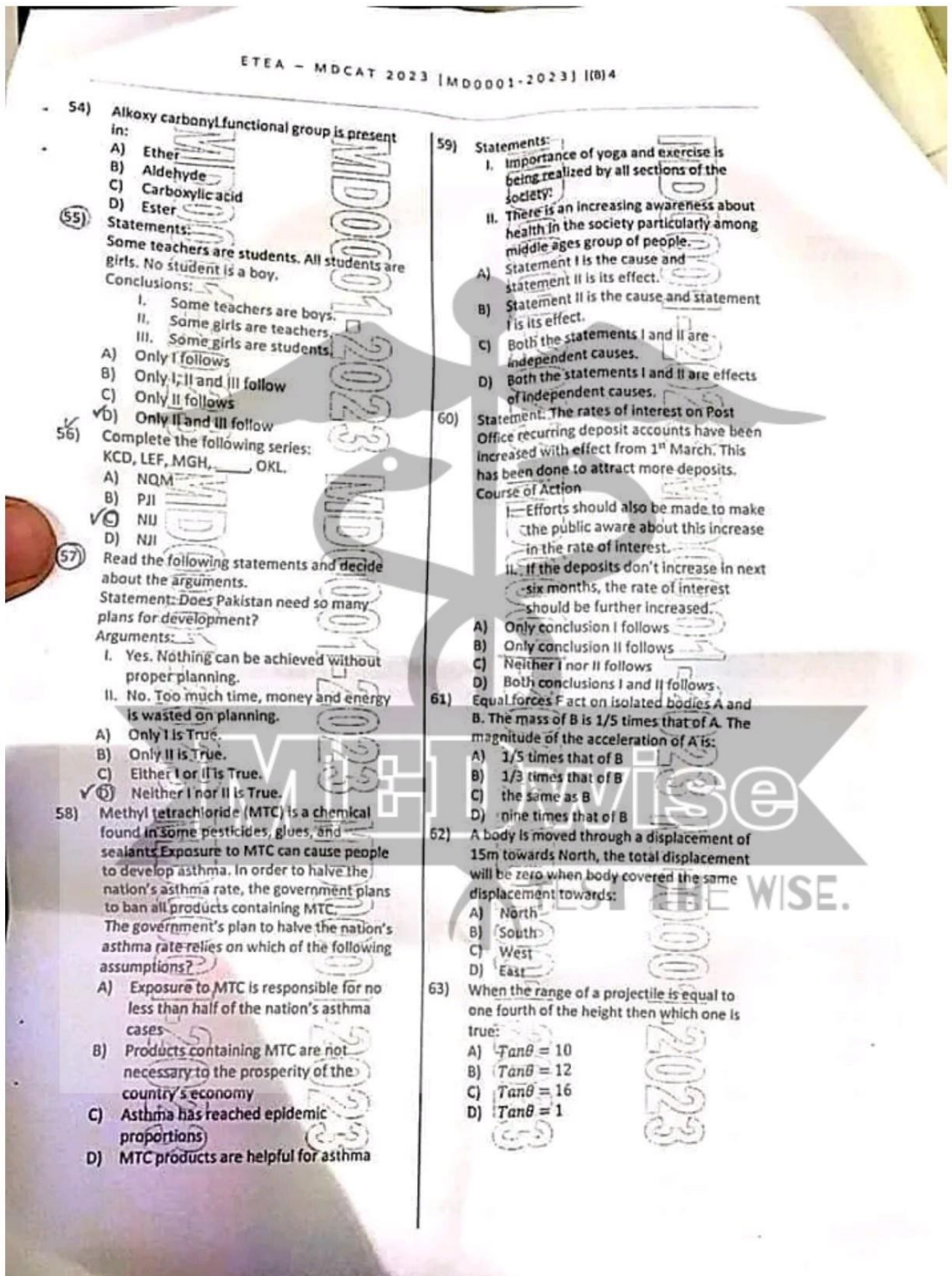
$$2KClO_{3(s)} + \text{heat} \rightarrow 2KCl_{(s)} + 3O_{2(g)}$$
  - A) 12 moles of oxygen
  - B) 15 moles of oxygen
  - C) 18 moles of oxygen
  - D) 21 moles of oxygen
- 3) 117.0g of NaCl have:
  - A)  $1.204 \times 10^{24}$  formula units of NaCl
  - B)  $12.04 \times 10^{22}$  formula units of NaCl
  - C)  $1.204 \times 10^{23}$  molecules of NaCl
  - D)  $6.023 \times 10^{23}$  molecules of NaCl
- 4) The number of orientations of a sub-shell for which  $n = 4$  and  $l = 3$  will be:
  - A) 5
  - B) 3
  - C) 7
  - D) 1
- 5) Photon of the lowest wavelength is related to:
  - A) Balmer series
  - B) Pfund series
  - C) Bracket series
  - D) Paschen series
- 6) The maximum  $e/m$  ratio for positive rays is obtained when the discharge tube contain:
  - A) He
  - B)  $N_2$
  - C) Ne
  - D)  $H_2$
- 7) 1 atm of pressure is equal to all of the following except:
  - A) 760 cm Hg
  - B) 760 mm Hg
  - C) 760 torr
  - D) 101325 Pa
- 8) The volume of a given mass of an ideal gas at certain pressure is  $x$  at constant temperature. What will be its volume when the pressure is reduced to half:
  - A)  $\frac{1}{2}x$
  - B)  $2x$
  - C)  $4x$
  - D)  $\frac{x}{4}$
- 9) The volume occupied by 3.2 g of oxygen gas at S.T.P is:
  - A) 1.12 dm<sup>3</sup>
  - B) 2.24 dm<sup>3</sup>
  - C) 22.4 dm<sup>3</sup>
  - D) 24 dm<sup>3</sup>
- 10) All of the following crystal systems have  $\alpha = \gamma = 90^\circ$  except:
  - A) Cubic
  - B) Orthorhombic
  - C) Tetragonal
  - D) Rhombohedral
- 11) Compound having lowest boiling point is:
  - A) Carbon tetrachloride
  - B) Ethyl alcohol
  - C) Benzene
  - D) Acetic acid
- 12) Which of the following can form Hydrogen bonding with each other?
  - A) Methanal & Ethanal
  - B) Propanone & ethyl methyl ketone
  - C) 3° Amine &  $H_2O$
  - D) Acetone & Acetaldehyde
- 13) Identify the molecular formula of Furan:
  - A)  $C_4H_4O$
  - B)  $C_5H_4O$
  - C)  $C_4H_5O$
  - D)  $C_4H_6O$
- 14) Haber's process is used for the synthesis of ammonia. The optimum temperature for the Haber process is:
  - A) 35 – 50°C
  - B) 130 – 150°C
  - C) 400 – 450°C
  - D) 500 – 600°C
- 15) If ionic product is less than  $K_{sp}$  then:
  - A) Solution will be saturated
  - B) Precipitation will occur
  - C) Solution will be super saturated
  - D) No precipitation will occur
- 16) For  $\Delta n = 0$ 
  - A)  $K_p = K_n$
  - B)  $K_p \neq K_n$
  - C)  $K_p > K_n$
  - D)  $K_p < K_n$
- 17) Reaction that follows third order kinetics is:
  - A) Decomposition of nitrogen dioxide
  - B) Decomposition of hydrogen iodide
  - C) Gas phase oxidation of nitric oxide
  - D) Formation of hydrogen iodide





ETEA - MDCAT 2023 [MDD001-2023] [(8)3

- Which one of the following is not Meta directing group?
- COR
  - NO<sub>2</sub>
  - CHO
  - NR<sub>2</sub>
- 36) Benzene-1,3-diol is also known as:
- Catechol
  - Resorcinol
  - Hydroquinone
  - O-cresol
- 37) Identify the electrophile called as acylium ion:
- R<sub>3</sub>N<sup>+</sup>
  - RCO<sup>+</sup>
  - RCOO<sup>+</sup>
  - RNO<sup>+</sup>
- 38) Among the following hydrocarbons which one has acidic hydrogen?
- C<sub>2</sub>H<sub>6</sub>
  - C<sub>2</sub>H<sub>4</sub>
  - C<sub>2</sub>H<sub>2</sub>
  - C<sub>6</sub>H<sub>6</sub>
- 39) Greater number of alkyl groups on substrate favours:
- Substitution reaction
  - Elimination reaction
  - Oxidation reaction
  - Free radical reaction
- 40) S<sub>N</sub>1 reactions mostly result in partial racemization. In partial racemization there is:
- Inversion only
  - Retention only
  - Equal inversion and retention
  - More inversion than retention
- 41) Which of the following involve the same steps?
- E1 and E2
  - E1 and S<sub>N</sub>1
  - S<sub>N</sub>1 and S<sub>N</sub>2
  - E2 and S<sub>N</sub>1
- 42) The correct sequence of electronic configuration is:
- 4p 5s 4d 5p 6s 4f 5d
  - 4p 4s 4d 5p 5s 5f 6d
  - 4p 4s 4d 5p 5s 4f 5d
  - 4p 3s 4d 5p 6s 4f 5d
- 43) When phenol reacts with excess of bromine in aqueous solution it results in the formation of:
- Ortho/para bromophenol
  - Meta-bromophenol
  - 2,4,6-Tribromophenol
  - 3,5-Dibromophenol
- 44) Propylene glycol and trimethylene glycol are:
- Functional group isomers
  - Metamers
  - Position isomers
  - Tautomers
- 45) The reduction of Aldehydes and Ketones to alkanes in the presence of Zinc amalgam and HCl is called:
- Clemmenson reduction
  - Williamson's synthesis
  - Wolf-Kishner reduction
  - Dow process
- 46) Aldehyde and Ketone on reaction with hydroxylamine form:
- Hydrazine
  - Hydrazone
  - Oxime
  - Imine
- 47) Fehling's solution works on the principle of redox reaction which results in:
- Reduction of Aldehydes
  - Oxidation of Copper (II)
  - Oxidation of Aldehyde
  - Oxidation of Ketone
- 48) In conversion of acid halides to ester, pyridine is used to:
- Stabilize acid halides
  - Consume HCl formed in the reaction
  - Dehydrate alcohol
  - Dehydrogenate acid halides
- 49) Number of carbon atoms in valeric acid is:
- 4
  - 5
  - 6
  - 7
- 50) The IUPAC name of formyl chloride is:
- Chloromethanoic acid
  - Chloromethane
  - Methanoyl chloride
  - Chloromethanoate
- 51) The inhibition, in which the inhibitor does not combine directly with the enzyme but binds to the enzyme substrate complex is called:
- Reversible inhibition
  - Competitive inhibition
  - Non-competitive inhibition
  - Uncompetitive inhibition
- 52) Trypsinogen can be activated by the action of:
- Amylase
  - HCl
  - Glucokinase
  - Enterokinase
- 53) Crystal having orthorhombic crystal system is:
- PbCrO<sub>4</sub>
  - BaSO<sub>4</sub>
  - ZnO
  - K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>



- 54) Alkoxy carbonyl functional group is present in:
- Ether
  - Aldehyde
  - Carboxylic acid
  - Ester
- 55) Statements:  
Some teachers are students. All students are girls. No student is a boy.  
Conclusions:  
I. Some teachers are boys.  
II. Some girls are teachers.  
III. Some girls are students.
- Only I follows
  - Only I, II and III follow
  - Only II follows
  - Only II and III follow
- 56) Complete the following series:  
KCD, LEF, MGH, \_\_\_\_\_, OKL.
- NQM
  - PJI
  - NIJ
  - NJI
- 57) Read the following statements and decide about the arguments.  
Statement: Does Pakistan need so many plans for development?  
Arguments:  
I. Yes. Nothing can be achieved without proper planning.  
II. No. Too much time, money and energy is wasted on planning.
- Only I is True.
  - Only II is True.
  - Either I or II is True.
  - Neither I nor II is True.
- 58) Methyl tetrachloride (MTC) is a chemical found in some pesticides, glues, and sealants. Exposure to MTC can cause people to develop asthma. In order to halve the nation's asthma rate, the government plans to ban all products containing MTC. The government's plan to halve the nation's asthma rate relies on which of the following assumptions?
- Exposure to MTC is responsible for no less than half of the nation's asthma cases.
  - Products containing MTC are not necessary to the prosperity of the country's economy.
  - Asthma has reached epidemic proportions.
  - MTC products are helpful for asthma.

- 59) Statements:  
I. Importance of yoga and exercise is being realized by all sections of the society.  
II. There is an increasing awareness about health in the society particularly among middle aged group of people.
- Statement I is the cause and statement II is its effect.
  - Statement II is the cause and statement I is its effect.
  - Both the statements I and II are independent causes.
  - Both the statements I and II are effects of independent causes.
- 60) Statement: The rates of interest on Post Office recurring deposit accounts have been increased with effect from 1<sup>st</sup> March. This has been done to attract more deposits.  
Course of Action  
I. Efforts should also be made to make the public aware about this increase in the rate of interest.  
II. If the deposits don't increase in next six months, the rate of interest should be further increased.
- Only conclusion I follows
  - Only conclusion II follows
  - Neither I nor II follows
  - Both conclusions I and II follow
- 61) Equal forces  $F$  act on isolated bodies A and B. The mass of B is  $1/5$  times that of A. The magnitude of the acceleration of A is:
- $1/5$  times that of B
  - $1/3$  times that of B
  - the same as B
  - nine times that of B
- 62) A body is moved through a displacement of 15m towards North, the total displacement will be zero when body covered the same displacement towards:
- North
  - South
  - West
  - East
- 63) When the range of a projectile is equal to one fourth of the height then which one is true:
- $\tan \theta = 10$
  - $\tan \theta = 12$
  - $\tan \theta = 16$
  - $\tan \theta = 1$

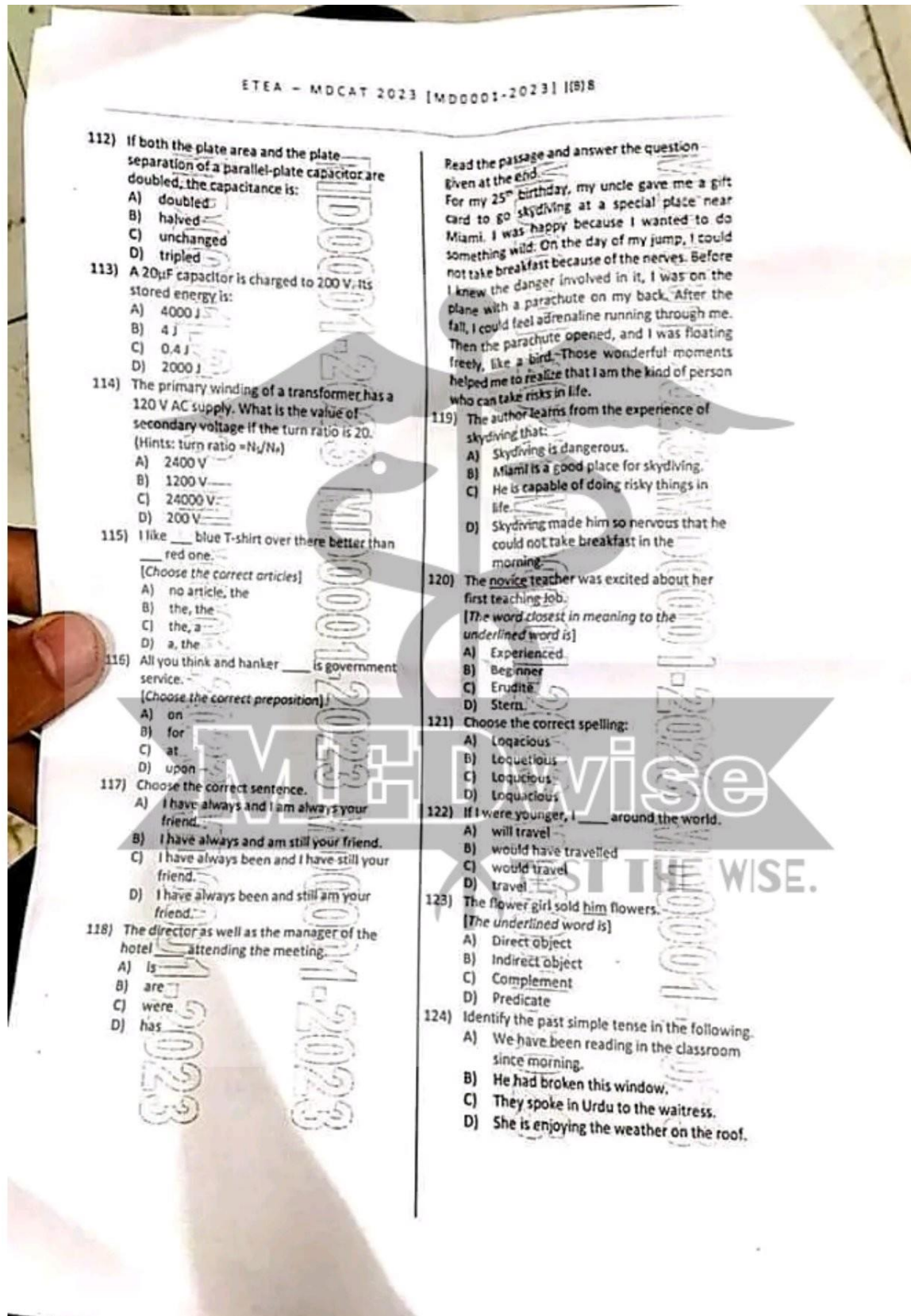


- 64) A body is moving with momentum of  $100 \text{ kg m/s}$ . What is the magnitude of force required to stop this body in  $25 \text{ sec}$ ?
- A)  $4 \text{ N}$   
 B)  $25 \text{ N}$   
 C)  $100 \text{ N}$   
 D)  $2500 \text{ N}$
- 65) Doubling the initial velocity of a projectile while keeping all other parameters the same, the height reached by the projectile increases by:
- A) two times  
 B) three times  
 C) four times  
 D) remains the same
- 66) Neglecting the effect of air resistance how long a stone takes to dropped off a  $125 \text{ m}$  high building lands on the ground, take  $g=10 \text{ m/s}^2$ :
- A)  $3 \text{ sec}$   
 B)  $4 \text{ sec}$   
 C)  $18 \text{ sec}$   
 D)  $5 \text{ sec}$
- 67) The weight of a body is  $120 \text{ N}$  and it is lifted to height  $10 \text{ m}$ , work done on the body is:
- A)  $120 \text{ J}$   
 B)  $100 \text{ J}$   
 C)  $1000 \text{ J}$   
 D)  $1200 \text{ J}$
- 68) A  $200 \text{ N}$  force acts on  $8 \text{ kg}$  crate that starts from rest. At the instant the object has gone  $2 \text{ m}$ , the rate at which the force is doing work is:
- A)  $2.5 \text{ W}$   
 B)  $25 \text{ W}$   
 C)  $75 \text{ W}$   
 D)  $2000 \text{ W}$
- 69) Which of the following bodies has the largest kinetic energy?
- A) Mass  $3 \text{ M}$  and speed  $V$   
 B) Mass  $3 \text{ M}$  and speed  $2V$   
 C) Mass  $3 \text{ M}$  and speed  $3V$   
 D) Mass  $M$  and speed  $4V$
- 70) A  $2 \text{ kg}$  object is released from rest  $8 \text{ m}$  above the surface of Earth. During the fall work done against air resistance is  $60 \text{ J}$ . Just before it hits the surface its speed is: (Hint: take  $g=10 \text{ m/sec}^2$ )
- A)  $10 \text{ m/sec}$   
 B)  $36 \text{ m/sec}$   
 C)  $40 \text{ m/sec}$   
 D)  $45 \text{ m/sec}$
- 71) The speedometer of a car shows  $36 \text{ km/hr}$ . The angular speed of the wheels having  $0.5 \text{ m}$  radius is:
- A)  $5 \text{ rad/sec}$   
 B)  $10 \text{ rad/sec}$   
 C)  $15 \text{ rad/sec}$   
 D)  $20 \text{ rad/sec}$
- 72) The angular speed in radian/hour for daily rotation of our earth is?
- A)  $\pi/12$   
 B)  $12\pi$   
 C)  $24\pi$   
 D)  $\pi/24$
- 73) A fly wheel rotates at constant speed of  $600 \text{ rpm}$ . The angle described by the shaft in radian in one second is:
- A)  $100\pi$   
 B)  $20\pi$   
 C)  $0$   
 D)  $20$
- 74) The angular speed of the second hand of a watch is:
- A)  $(\pi/1800) \text{ rad/sec}$   
 B)  $(\pi/60) \text{ rad/sec}$   
 C)  $(\pi/30) \text{ rad/sec}$   
 D)  $(2\pi) \text{ rad/sec}$
- 75) A stretched string vibrates with frequency  $f$ , when tension in the string is  $T$ , for what value of tension, the frequency of the same string is doubled?
- A)  $2T$   
 B)  $4T$   
 C)  $8T$   
 D)  $16T$
- 76) The longitudinal waves travel more slowly in than in
- A) Solids, gases  
 B) Solids, liquid  
 C) Gases, solids  
 D) Liquid, gases
- 77) Sinusoidal water waves are generated in a large ripple tank. The waves travel at  $25 \text{ cm/s}$  and their adjacent crests are  $5.0 \text{ cm}$  apart. The time required for each new whole cycle to be generated is:
- A)  $100 \text{ sec}$   
 B)  $4.0 \text{ sec}$   
 C)  $2.0 \text{ sec}$   
 D)  $0.2 \text{ sec}$
- 78) The distance between adjacent node and anti-node is equal to:
- A)  $\lambda$   
 B)  $\frac{\lambda}{2}$   
 C)  $2\lambda$   
 D)  $\frac{\lambda}{4}$
- 79) A string clamped at its both ends, vibrates in four segments (loops). The length of string is  $150 \text{ cm}$ . The wavelength of the wave is:
- A)  $33.3 \text{ cm}$   
 B)  $66.7 \text{ cm}$   
 C)  $150 \text{ cm}$   
 D)  $75 \text{ cm}$

- 80) The square root of the ratio of elasticity to mass density is equal to:  
 A) Force  
 B) Product of frequency and wavelength  
 C) Co-efficient of Viscosity  
 D) Refractive index
- 81) If the pressure of air enclosed in a long tube is increased 10 times, then speed of sound will:  
 A) Increase  
 B) Decrease  
 C) Remain constant  
 D) Become zero
- 82) The expression,  $C_p - R$  is equal to:  
 A)  $C_v$   
 B)  $R$   
 C)  $C_p - C_v$   
 D)  $R + C_p$
- 83) In a certain process, 200J of heat energy is supplied to a system and at the same time 50J of work is done by the system. The increase in the internal energy of the system is:  
 A) 25J  
 B) 100J  
 C) 150J  
 D) 250J
- 84) Work done during isochoric process is:  
 A) Negative  
 B) Maximum Negative  
 C) Maximum Positive  
 D) Zero
- 85) Two charges of magnitude  $q_1 = 1 \mu\text{C}$  and  $q_2 = 5 \mu\text{C}$ , are separated at a distance  $r = 1 \times 10^{-2} \text{ m}$  apart, the ratio of the magnitude of the forces acting on them will be:  
 A) 1:5  
 B) 1:25  
 C) 1:3  
 D) 1:1
- 86) For 0.5 Siemens of conductance, resistance will be:  
 A) 10  
 B) 20  
 C) 200  
 D) 100
- 87) 1 volt  $\times$  1 ampere is equal to:  
 A) 1 coulomb  
 B) 1 newton  
 C) 1 watt  
 D) 1 hp
- 88) A wire of length  $L$  has resistivity  $\rho$ . If the wire is divided in two halves, then resistivity of each half is:  
 A)  $\rho/2$   
 B)  $\rho$   
 C)  $2\rho$   
 D)  $\rho/3$
- 89) In how many hours a 1000-watt AC will consume one unit of electricity?  
 A) 0.5 hr  
 B) 1 hr  
 C) 1.5 hr  
 D) 2 hr
- 90) Of the following, the copper conductor that has the least resistance must be:  
 A) thick, short and cool  
 B) thin, long and hot  
 C) thick, long and hot  
 D) thin, short and cool
- 91) A certain x-ray tube requires a current of 5 mA at a voltage of 60 kV. The rate of energy dissipation (in watts) is:  
 A) 360  
 B) 300  
 C) 200  
 D) 800
- 92) Ampere-Second is the unit of:  
 A) Power  
 B) Charge  
 C) Potential difference  
 D) Current
- 93) The magnitude of the magnetic flux through area  $A$  has exactly the same value at angles:  
 A)  $0^\circ$  and  $180^\circ$   
 B)  $90^\circ$  and  $180^\circ$   
 C)  $180^\circ$  and  $270^\circ$   
 D)  $270^\circ$  and  $360^\circ$
- 94) A hydrogen atom that has lost its electron is moving east in a region where the magnetic field is directed from south to north. It will be deflected:  
 A) Up  
 B) Down  
 C) North  
 D) South
- 95) When the magnetic force acts on a charge particle, change occurs in:  
 A) Magnitude of velocity only  
 B) Magnitude and direction of velocity  
 C) Only the direction of velocity  
 D) Neither direction nor magnitude of velocity
- 96) A constant magnetic field of 5T is passing through a static conducting loop of area  $0.8 \text{ m}^2$ , the induced emf is:  
 A) 4 V  
 B) 10 V  
 C) Zero  
 D) 32 V

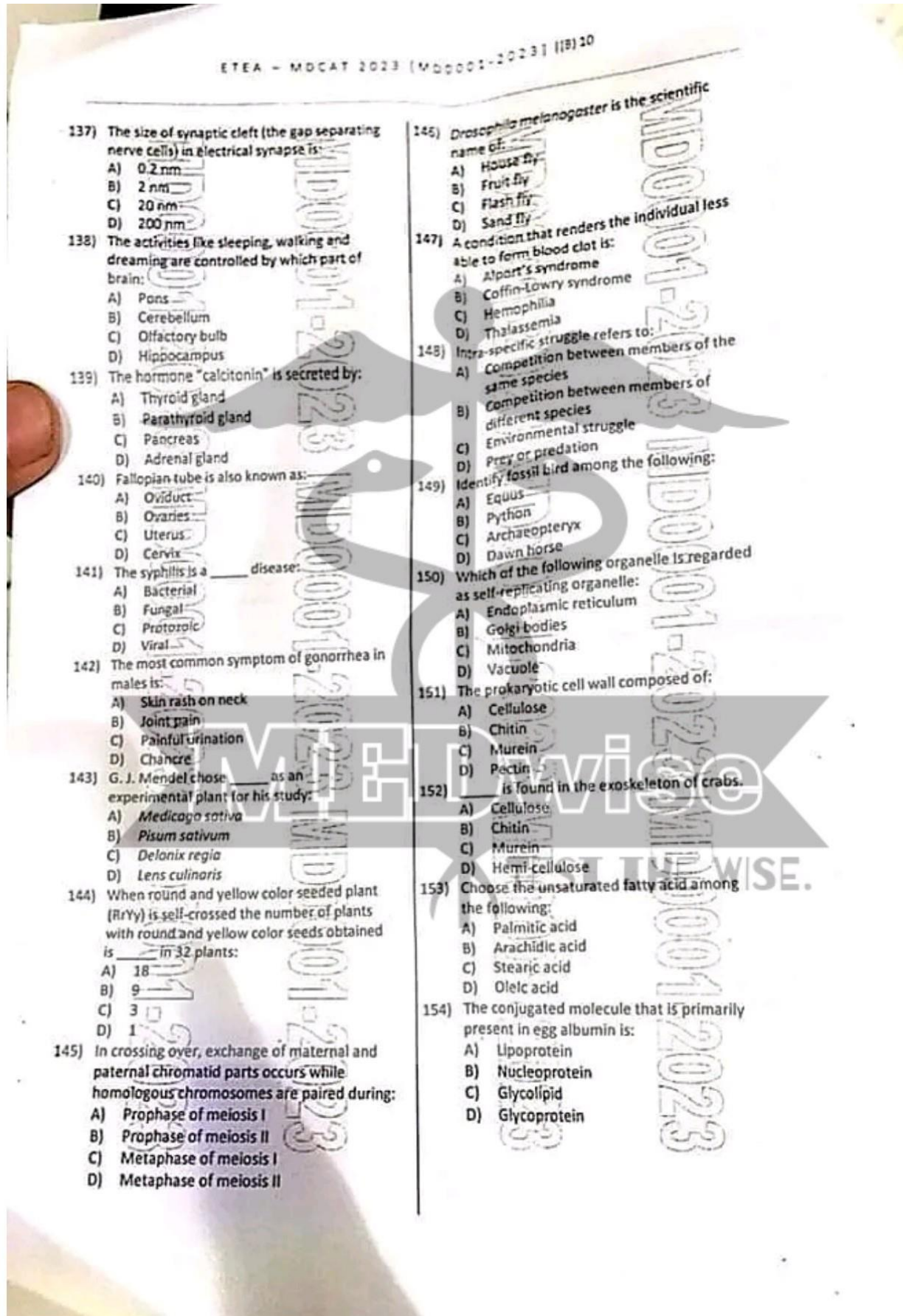


- 97) Magnetic flux linked with a conducting loop "A" is increased at the rate of 15 weber/second and in another conducting loop "B" is decreased at the rate of 15 weber/second, the magnitude of induced emf of:
- Loop A will be equal to loop B
  - Loop A is smaller than loop B
  - Loop B is smaller than loop A
  - Both will be zero
- 98) For induced emf to be produced in a coil, the magnetic flux linked with a coil must:
- only decrease
  - only increase
  - be constant
  - be changed
- 99) For half wave rectification, the number of diode needed in a circuit is:
- 1
  - 2
  - 3
  - 4
- 100) The frequency of a light beam "A" is half of that of light beam "B". The ratio  $E_A/E_B$  of photons energies is:  
(Hint: where  $E_A$  &  $E_B$  are the respective energies of light beam "A" & "B")
- $1/2$
  - $1/4$
  - 1
  - 2
- 101) The wavelength of photon "A" is half the wavelength of photon "B". The energy of a photon "A" is:
- half the energy of a photon B
  - one-fourth the energy of a photon B
  - equal to the energy of photon B
  - twice the energy of photon B
- 102) If frequency of light is greater than threshold frequency then in photoelectric effect the number of electrons increases with increase in \_\_\_\_\_ of light:
- frequency
  - kinetic energy
  - intensity
  - momentum
- 103) The shortest wavelength associated to Paschen series is:
- $\lambda = \frac{9}{R_H}$
  - $\lambda = \frac{36}{R_H}$
  - $\lambda = \frac{19}{R_H}$
  - $\lambda = \frac{1}{R_H}$
- 104) The ratio of shortest wavelength to longest of Lyman series is:
- $R_\infty$
  - $4/3$
  - $3/4$
  - 4
- 105) Half-life of a radioactive element is 100 days. How much quantity of the 88 g of such element will remain after three half-lives?
- 8 g
  - 10 g
  - 11 g
  - 44 g
- 106) Radioactive  $^{90}\text{Sr}$  has a half-life of 30 years. What percent of a sample of  $^{90}\text{Sr}$  will remain after 90 years?
- 0%
  - 12.5%
  - 50%
  - 75%
- 107) At the end of 15 min,  $1/32$  of a sample of radioactive polonium remains. The corresponding half-life is:
- 0.469 min
  - 32 min
  - 15 min
  - 3 min
- 108) Two equal and opposite charges of 10 C are separated at a distance of 10 cm, the electric potential at mid-point between the charges is:
- 20 V
  - 10 V
  - 5 V
  - 0 V
- 109) The force of repulsion between two alike charges is 10 N in vacuum. When a material of  $\epsilon_r = 2$  is placed between them, new force will be:
- 20 N
  - 15 N
  - 10 N
  - 5 N
- 110) The slope of the charge-time graph for a charging capacitor gives:
- Current
  - Voltage
  - Force
  - Energy
- 111) Two small charged objects attract each other with a force  $F$  when separated by a distance  $d$ . If the charge on each object is reduced to one-fourth of its original value and the distance between them is reduced to  $d/2$  the force becomes:
- $F/16$
  - $F/8$
  - $F/4$
  - $F/2$

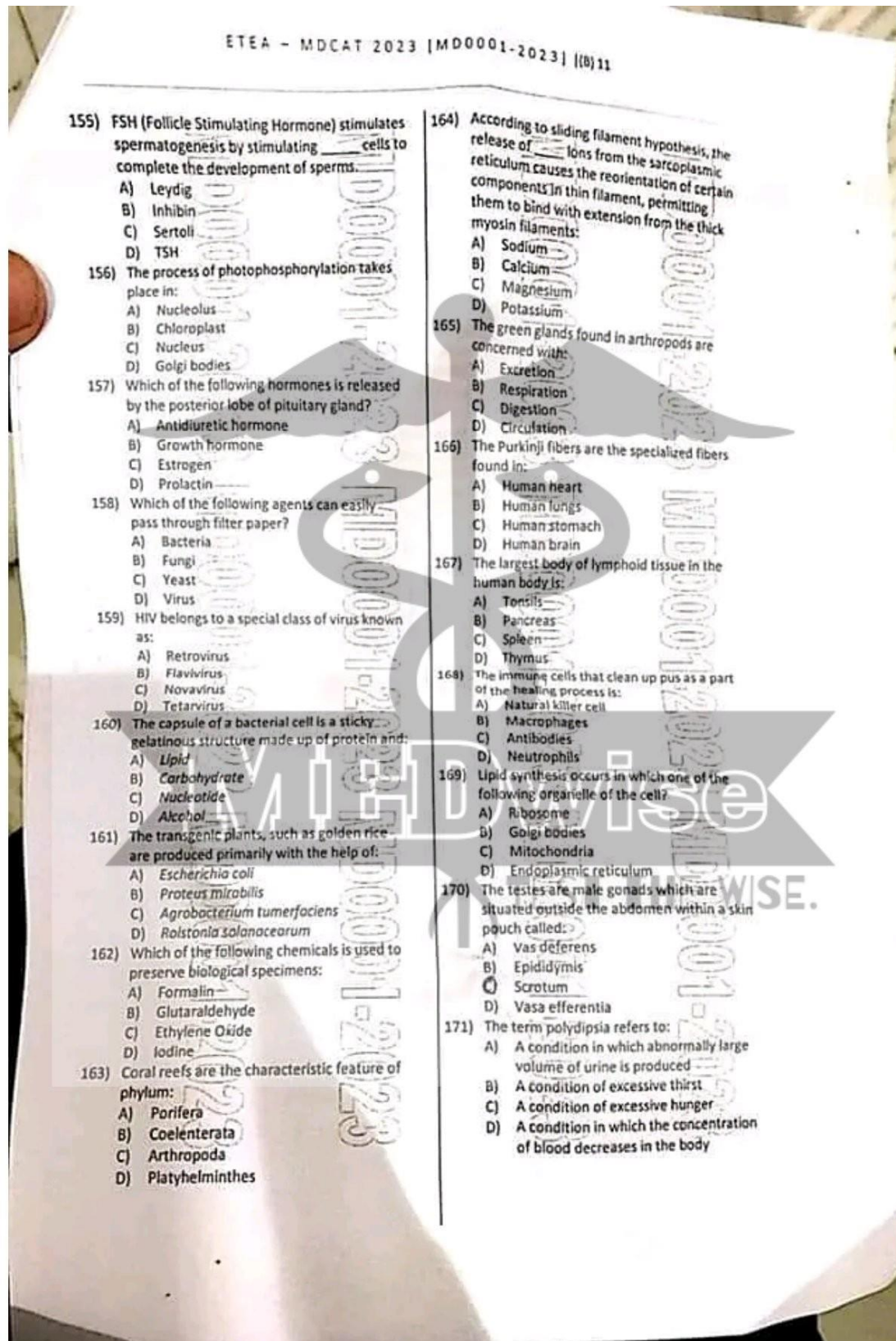




- 125) Something odd was happening all around the world.  
[Identify the underlined clause]  
A) Subordinate clause  
B) Independent clause  
C) Dependent clause  
D) Relative clause
- 126) We met rather few people who spoke English.  
[The sentence is]  
A) Complex  
B) Simple  
C) Compound  
D) Compound complex
- 127) Identify the sentence with correct punctuation and capitalization.  
A) The automobile dealer handled three makes of cars: Toyota, Suzuki, and Honda.  
B) The automobile dealer handled three makes of cars; Toyota, Suzuki, and Honda.  
C) The automobile dealer handled three makes of cars: toyota, suzuki, and honda.  
D) The automobile dealer handled three makes of cars, Toyota, Suzuki, and Honda.
- 128) Which of the following sentences is in correct order?  
A) We up right drove to Karachi in two days.  
B) We to Karachi drove in two days right up.  
C) We right drove to Karachi up in two days.  
D) We drove right up to Karachi in two days.
- 129) You can either come with me now nor walk home later.  
[The word which does not fit in the sentence is]  
A) Can  
B) Either come  
C) Now  
D) Nor
- 130) I just don't want to get out off bed today.  
[Find an error in the sentence if any]  
A) Get out  
B) Just  
C) Off  
D) No error
- Read the passage and answer the questions given at the end (Q131-132)  
Efforts should be made to control the use of tobacco in the campuses of educational institutions because it is gateway to drug abuse. Most of the youths usually start with soft drugs like cigarettes, chhaliya, gutka, naswar and pan, and then move to hard drugs like heroin, opium, cocaine, ice and sheesha, etc. People who start smoking cigarettes or drink alcohol at a young age are much more likely to experiment with illegal drugs than people who do not smoke or drink.
- 131) According to the paragraph:  
A) Educational institutions are gateways to the control of tobacco  
B) Youths who start with soft drugs are likely to experiment with illegal drugs  
C) People who do not smoke or drink are less likely to experiment with illegal drugs  
D) People who start smoking at a young age are less likely to experiment with illegal drugs
- 132) Smoking cigarettes or drinking alcohol leads to:  
A) Legal drugs  
B) Illegal drugs  
C) Soft drugs  
D) The use of tobacco in educational institutions
- 133) Which of the following statements is not correct about alveoli:  
A) Alveoli form the gas exchange surface  
B) The wall of each alveolus is 0.1 cm thick  
C) Alveoli has a dense network of capillaries  
D) Collagen and elastin present in alveoli allow it to expand and recoil easily during breathing
- 134) Which of the following connective tissues consist of cells known as chondrocytes:  
A) Myocardium  
B) Cartilage  
C) Bone  
D) Periosteum
- 135) The joint present between wrist bones is:  
A) Fibrous joint  
B) Cartilaginous joint  
C) Hinge joint  
D) Ball and socket joint
- 136) A sarcomere is the region of a myofibril between two successive:  
A) I-line  
B) A-line  
✓ C) Z-line  
D) M-line







- 172) Lactose is composed of:  
 A) Glucose + Fructose  
 B) Glucose + Galactose  
 C) Glucose + Glucose  
 D) Fructose + Galactose
- 173) Saprophytic bacteria are:  
 A) Autotrophs  
 B) Decomposers  
 C) Parasites  
 D) Photosynthetic
- 174) In human heart right atrium communicates with right ventricle through:  
 A) Inter-auricular septum  
 B) Ventricular septum  
 C) Tricuspid valve  
 D) Bicuspid valve
- 175) The first segment of the small intestine is:  
 A) Duodenum  
 B) Jejunum  
 C) Ileum  
 D) Colon
- 176) Which one of the following factors does not affect the rate of enzyme action?  
 A) Temperature  
 B) Substrate concentration  
 C) Enzyme concentration  
 D) Water concentration
- 177) Light reaction occurs in the \_\_\_\_\_ of chloroplast:  
 A) Outer membrane  
 B) Inner membrane  
 C) Granum  
 D) Stroma
- 178) How many pieces of ribonucleic acid (RNA) make up the genome of influenza virus?  
 A) 4  
 B) 6  
 C) 8  
 D) 10
- 179) In Mendelian cross for heterozygous flower ( $P_p$ ), what is the probability that the dominant allele will be in sperm and the recessive in the egg:  
 A) 0.05  
 B) 0.5  
 C) 0.25  
 D) 0.75
- 180) Mastication causes exocrine glands under the tongue and in the back of mouth to secrete a watery liquid called:  
 A) Bolus  
 B) Bile  
 C) Pancreatic juice  
 D) Saliva
- 181) In phylum Aschelminths (Nematoda), nervous system consists of a nerve ring which encircles the \_\_\_\_\_ and sends its branches in different parts of the body.  
 A) Lips  
 B) Teeth  
 C) Stomach  
 D) Pharynx
- 182) *Salmonella typhi* causing typhoid and *Clostridium tetani* causing tetanus are which type of bacteria?  
 A) Bacilli  
 B) Spirilla  
 C) Cocci  
 D) Comma
- 183) Who formulated the principle that 'ontogeny recapitulates phylogeny':  
 A) Von beer  
 B) Haeckel  
 C) Herbert Spencer  
 D) Darwin
- 184) Aquatic mammals belong to the order \_\_\_\_\_  
 A) Cetacea  
 B) Pholidota  
 C) Chiroptera  
 D) Proboscidea
- 185) All of the following paired organs/structures have homology except:  
 A) Human hand: Bat's wing  
 B) Bat's wing: Wings of butterfly  
 C) Horse front leg: Front flippers of whale  
 D) Wings of bird: Wings of flying lizards
- 186) The head of some phages are icosahedral, which means that the head possess:  
 A) 6 sides  
 B) 10 sides  
 C) 15 sides  
 D) 20 sides
- 187) In sickle cell, haemoglobin molecule, glutamic acid, is replaced by:  
 A) Proline  
 B) Glutamine  
 C) Valine  
 D) Glycine
- 188) Where do phospholipids arrange themselves in a cell?  
 A) Inside the nucleus  
 B) Inside the cytoplasm  
 C) In the plasma membrane  
 D) Inside the mitochondrial matrix



- ## THE END

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